

PATENT CLAIMS

1. A method for separation of the phases of a multiphase fluid from one or more wells, in which a multiphase fluid is conducted to an equipment for the separation of different phases in the fluid from each other, **characterised in** that the fluid is selectively conducted to at least one first and at least one second gravity separator (3-6) in parallel or in subsequent steps depending on the properties of the fluid and process conditions.
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2. A method according to claim 1, **characterised in** that the multiphase fluid is conducted to one first gravity separator or to a group of first gravity separators (3-6) connected in parallel, in order to be subjected to a first gravitational settling step, and that one of the separation products of that step is conducted to a second gravity separator or group of second gravity separators (3-6) connected in parallel, in order to be subjected to a second gravitational settling step.
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3. A method according to claim 1 or 2, **characterised in** that out of a plurality of three or more gravity separators (3-6), based on process conditions and properties of the multiphase fluid, one or more separators are selected to become said first separator or separators, the remaining separator or separators being utilised as said second separator or separators.
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4. A method according to any one of claims 1-3, **characterised in** that said separation product of the first gravitational settling step is subjected to an emulsion-breaking treatment other than gravitational settling before being subjected to the second gravitational settling step.
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5. A method according to claim 4, **characterised in** that said emulsion-breaking treatment other than gravitational settling comprises treatment by means of an electrostatic coalescer (7).
- 5 6. A method according to any one of claims 1-5, **characterised in** that the multiphase fluid is subjected to a treatment for removal of gas and/or solid particles before being subjected to the gravitational settling in the gravity separators (3-6).
- 10 7. A method according to any one of claims 1-6, **characterised in** that the multiphase fluid delivered to the first and second gravity separators (3-6) comprises an oil phase and a water phase, and that the separation product conducted from the first gravity separator or group of first gravity separators (3-6) to the second gravity separator or group of second gravity separators (3-6) is the oil-richest phase obtained by the gravity settling in the first separator or separators.
- 15 8. A system for separating the phases of a multiphase fluid from one or more wells, comprising at least one first gravity separator (3-6) and at least one second gravity separator (3-6), and means for conducting the fluid from the well or wells to the first and second gravity separator(s) (3-6), **characterised in** that it comprises means (15-18, 41-44, 50-53, 54-57) for selectively conducting the fluid to the first and second gravity separators (3-6) either in parallel or in subsequent steps.
- 20 9. A system according to claim 8, **characterised in** that it comprises at least three gravity separators (3-6), and that it comprises means (15-18, 41-44, 50-53, 54-57) for selectively connecting at least one of the gravity separators (3-6) such that it either belongs to a group of first gravity separators (3-6) or a group of second gravity separators (3-6).
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10. A system according to claim 8 or 9, **characterised in** that it comprises means (15-18, 41-44, 50-53, 54-57) for connecting the individual gravity separators (3-6) of a group of first separators or a group of second separators in parallel with each other.

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11. A system according to any one of claims 8-10, **characterised in** that it comprises an emulsion-breaking unit (7) that is arranged in series with the first and second gravity separator(s) (3-6).

10 12. A system according to any one of claims 8-11, **characterised in** that it comprises means for connecting the emulsion-breaking unit (7) in series with and downstream the first gravity separator or group of first gravity separators (3-6) and upstream the second gravity separator or group of second gravity separators (3-6).

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13. A system according to any one of claims 8-12, **characterised in** that it comprises a plurality of gravity separators (3-6), a corresponding plurality of first conduits (10-13) leading from the well to each of the gravity separators (3-6), and a valve means (15-18) for controlling the flow through each individual conduit (10-13) to the gravity separator (3-6) associated thereto, and a circuit comprising a conduit (32-40) leading from an outlet (20-23) of a first separator to an inlet (28-31) into a second separator, for conducting one of the separation products of the first separator (3-6) to the second separator (3-6), and a valve (41-44, 54-57) for controlling the flow of said separation product to the second gravity separator (3-6).

14. A system according to claim 13, **characterised in** that it comprises a plurality of conduits (32-40), one for each gravity separator (3-6), leading from an outlet (20-23) of the associated separator (3-6) to an inlet (28-31) of each one of the plurality of separators (3-6), for conducting a separation product to any one of

the other ones of the plurality of separators (3-6), and a plurality of valves (41-44, 54-57) for controlling the flow of said separation product to each individual or a group of the separators (3-6).

- 5 15. A system according to claim 13 or 14, **characterised in** that said circuit comprises the emulsion-breaking unit (7), and that the separation product conducted therein passes through the emulsion-breaking unit (7).
- 10 16. A system according to claim 14 or 15, **characterised in** that the plurality of conduits (32-35) of said circuit that lead from said outlets (20-23) of the individual separators (3-6) are gathered to one single conduit (36), and that there are downstream branches (37-40) from the single conduit (36) that lead to said inlets (28-31) of the respective separator (3-6).
- 15 17. A system according to any one of claims 8-16, **characterised in** that it comprises a plurality of valve-operated conduits (32-40, 45-48), one for each of the plurality of separators (3-6), that lead from an outlet (20-23) of said separators (3-6) to a following, different treatment step other than gravitational settling.
- 20 18. A system according to any one of claims 8-17, **characterised in** that it comprises at least one separator (2) upstream the set of gravity separators (3-6), for the purpose of separating gas and/or solid particles from the multiphase fluid before conducting the latter to the gravity separators (3-6).
- 25 19. A system according to any one of claims 8-18, **characterised in** that it is a subsea system.

20. A subsea system according to any one of claims 8-19,
characterised in that the multiphase fluid comprises an oil phase
and a water phase that are to be separated from each other in the
gravity separators (3-6).

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